CLIMATE PROGRAM OFFICE

Applied Research Centers

Can long-term institutional support enhance the effectiveness of climate research efforts?

The Applied Research Centers (ARCs) conduct research and development in support of NOAA's mission. Operating with stable funding under five-year-renewable institutional awards, each center has a unique capability to contribute to NOAA's overall Climate Mission Goal of improving climate models and decision support. What distinguishes the ARCs from other competitive programs is that the ARCs receive sustained funding which allows for more flexibility and innovation. Thus, they make more focused contributions to climate modeling and decision support.

Approaches

The **Climate Diagnostics ARC** in Boulder, Colorado, conducts studies to illuminate the roles of various mechanisms that perturb the climate system. Members of this ARC work closely with the co-located Regional Integrated Sciences and Assessments (RISA) program to improve delivery of regional climate products and services.

The Center for Ocean-Atmospheric Prediction Studies (COAPS) in Tallahassee, Florida, supports interdisciplinary Earth system research to increase our understanding of the physical, social, and economic consequences of climate variations. This ARC works closely with the Southeast Climate Consortium RISA to improve model outputs for seasonal climate outlooks and to examine the model's potential for crop yield estimation.

The **Center for Ocean-Land-Atmosphere Studies (COLA)** is located in Calverton, Maryland. Its mission is to explore, establish, and quantify the predictability of seasonal to decadal variability in a changing climate. This ARC, in collaboration with the National Centers for Environmental Prediction, has performed evaluation of, and experimentation with, a range of climate models and cutting-edge research in seasonal-to-interannual climate predictability.

NASA

Hurricane Dennis bearing down on the U.S. Gulf Coast on July 10, 2005, packing a larger-than-predicted storm surge.

The Center for Science in the Earth System (CSES) in Seattle, Washington, combines expertise in climate dynamics, ecology, hydrology, and policy analysis in a multidisciplinary approach to examining the impacts of climate on the U.S. Pacific Northwest. This center is affiliated with the Joint Institute for Study of Atmosphere and Ocean and the University of Washington's RISA group.

The **Experimental Climate Prediction Center (ECPC)** in San Diego, California is located within the Climate Research Division at Scripps Institution of Oceanography. Their goal is to develop experimental global to regional predictions of the atmosphere, ocean, and land, at daily to interannual time scales. This group has worked to provide experimental forecasts and guidance to manage brush and forest fires in California.

ARC Highlight

In July 2005, Hurricane Dennis caused a 10-foot storm surge in parts of Florida — 3 to 4 feet more than forecast. Scientists at COAPS found that the surge was enhanced by a "trapped wave." This is the first time that this type of phenomenon was modeled, and it resulted in improved National Hurricane Center storm surge models for the Gulf of Mexico.

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